

REMARKS/ARGUMENTS

Claims 1-16 and 18-21 are pending, claims 1-6, 8, 10 and 11 having been withdrawn from consideration. By this Amendment, claim 17 is cancelled and claim 7 is amended. Support for the amendments to claim 7 can be found, for example, in the present specification at page 20, line 16 to page 21, line 24, and in original claim 7. No new matter is added. In view of the foregoing amendments and following remarks, reconsideration and allowance are respectfully requested.

Personal Interview

Applicants appreciate the courtesies extended to Applicants' representatives by Examiner Rachuba during the April 30, 2007 Personal Interview. Applicants' separate record of the substance of the interview is incorporated in the following remarks.

Objection to the Claims

The Office Action objects to claims 7, 9 and 16-21 as including informalities. By this Amendment, claim 7 is amended to obviate the objection and claim 17 is cancelled. Claims 7, 16 and 18-21 are objected to solely for their dependency from claim 1. Accordingly, reconsideration and withdrawal of the objection are respectfully requested.

Rejection Under 35 U.S.C. §102

The Office Action rejects claims 7, 9 and 16-21 under 35 U.S.C. §102(b) over U.S. Patent No. 6,383,240 to Nishimoto et al. ("Nishimoto"). By this Amendment, claim 17 is cancelled, rendering the rejection moot as to that claim. As to the remaining claims, Applicants respectfully traverse the rejection.

Claim 7 recites "[a] process for producing a semiconductor device, comprising: polishing a surface of a semiconductor material with an aqueous dispersion for chemical mechanical polishing comprising abrasive grains and a heterocyclic compound; wherein ... the heterocyclic compound comprises at least one member selected from the group consisting of a quinolinecarboxylic acid, an indolizine, a compound having a 5-membered heterocycle, and a compound having a 6-membered heterocycle; and the 6-membered heterocycle comprises at least one member selected from the group consisting of 3-amino-5,6-dimethyl-1,2,4-triazine, 2,4-diamino-6-diallylamino-1,3,5-triazine, 3-amino-5,6-dimethyl-1,2,4-triazine, benzoguanamine, thiocyanuric acid, melamine, phthalazine, and 2,3-dicyano-5-methylpyrazine" (emphasis added). Nishimoto does not disclose or suggest such a process.

The Office Action states, without explanation, that Nishimoto anticipates the process of claim 7. *See* Office Action, page 3. Notwithstanding this assertion, Nishimoto fails to disclose or suggest the particular combination of features of claim 7. Claim 7 requires polishing with a CMP composition including (a) simple particles, (b) composite particles, and (c) a heterocyclic compound. In no embodiment does Nishimoto disclose polishing with a CMP composition including features (a), (b) and (c) discussed above. While Nishimoto generally indicates that a combination of simple and composite particles could be used in a CMP composition (*see* Nishimoto, column 3, lines 6 to 10), nowhere does Nishimoto disclose or suggest an actual CMP composition including simple and composite particles, much less in combination with a heterocyclic compound. The only suggestion to employ such the combination of features (a), (b) and (c) is found in the present specification.

Moreover, claim 7, as amended herein, does not merely require a heterocyclic compound, but rather a heterocyclic compound selected from a particular group of compounds. Nishimoto does not disclose or suggest polishing with a composition including a heterocyclic compound selected from the particular group recited in claim 7. The Office

Action asserts that Nishimoto discloses CMP compositions including "peracetic acid, perbenzoic acid [which] are 5 or 6 member heterocycle compounds...." *See* Office Action, page 3. Applicants note that neither peracetic acid nor perbenzoic acid is a heterocyclic compound. A heterocyclic compound is a compound including more than one type of atom joined in a ring. *See, e.g.,* American Heritage College Dictionary 650 (4th ed. 2004). Peracetic acid does not include a ring at all, and perbenzoic acid includes a benzene ring (carbon-only – no hetero-atom).

While peracetic acid and perbenzoic acid, as identified in the Office Action, are not heterocyclic compounds, Applicants note that Nishimoto does disclose employing 4-vinylpyridine (a heterocyclic compound) as a pH-adjusting compound. *See* Nishimoto, column 5, lines 54 to 56. However, 4-vinylpyridine is not a heterocyclic compound selected from the particular group recited in claim 7. Moreover, there is nothing in Nishimoto suggesting that heterocyclic compounds other than 4-vinylpyridine could or should be used in a CMP composition (Nishimoto suggests that ethylenediamine and ethanolamine, which are not heterocyclic compounds, would be suitable alternatives to the disclosed 4-vinylpyridine). As Nishimoto fails to disclose or suggest polishing with a composition including a heterocyclic compound selected from the particular group recited in claim 7, Nishimoto fails to disclose or suggest each and every feature of claim 7.

As explained, claim 7 is not anticipated by Nishimoto. Claims 9, 16 and 18-21 depend from claim 7 and, thus, also are not anticipated by Nishimoto. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Rejection Under 35 U.S.C. §103

The Office Action rejects claims 12-15 under 35 U.S.C. §103(a) over Nishimoto. Applicants respectfully traverse the rejection.

For the reasons discussed above, claim 7 would not have been rendered obvious by Nishimoto. Claims 12-15 depend from claim 7 and, thus, also would not have been rendered obvious by Nishimoto. Accordingly, reconsideration and withdrawal of the rejection are respectfully requested.

Conclusion

For the foregoing reasons, Applicants submit that claims 1-16 and 18-21 are in condition for allowance. Prompt reconsideration and allowance are respectfully requested.

Respectfully submitted,

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